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2832 #5

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of:	)	
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J. Beichler, et al.	)	Group Art Unit: 2832
	)	
Serial No.: 10/031,483	)	Examiner: T. Nguyen
	)	
Filed: May 1, 2002	)	
	)	
For: INTERFACE MODULE FOR A LOCAL DATA NETWORK	)	

February 18, 2004
Attorney Docket No. 47192/265663

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Commissioner of Patents and Trademarks, Alexandria, VA 22313-1450, on February 18, 2004

Dean W Russell
Signature

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

AMENDMENT, RESPONSE, AND
PETITION FOR EXTENSION OF TIME

Dear Sir:

This paper is submitted in response to the Office Action mailed August 19, 2003 in connection with the above-identified application.

02/26/2004 AADOF01 00000106 10031483
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Amendment

A listing of claims follows:

1. (currently amended) An interface module for local ~~data~~area networks having an inductive component used as a transformer for coupling interface circuits to a data line used to connect computers, with the inductive component having a magnetic core and multiple windings applied to the core, wherein the inductive component used as a transformer has a magnetic core made of an amorphous or nanocrystalline alloy with a permeability $\mu > 15{,}000$ and the number of turns of the windings is between 5 and 25.

2. (previously presented) The interface module according to claim 1, wherein the amorphous or nanocrystalline alloy has a permeability $\mu > 30{,}000$.

3. (previously presented) The interface module according to claim 1, wherein the alloy has the composition $Co_a(Fe_{1-c}Mn_c)_bNi_dM_eSi_xB_yC_z$, with M indicating one or more elements from the group Nb, Mo, Ta, Cr, W, Ge, and/or P and a+b+d+e+x+y+z = 100, with

Co	a = 40 - 82 at%
Fe+Mn	b = 3 - 10 at%
Mn/Fe	c = 0 - 1
Ni	d = 0 - 30 at%
M	e = 0 - 5 at%
Si	x = 0 - 17 at%

B	$y = 8 - 26$ at%
C	$z = 0 - 3$ at%

and 15 at% < e+x+y+z < 30 at%.

4. (previously presented) The interface module according to claim 3, wherein the following relationships apply:

Co	$a = 55 - 72$ at%
Mn/Fe	$c = 0 - 0.5$
Ni	$d = 0 - 20$ at%
M	$e = 0 - 3$ at%
B	$y = 8 - 20$ at%
Si	$x = 1 - 18$ at%

and 20 at% < e+x+y+z < 30 at%.

5. (previously presented) The interface module according to claim 1, wherein the alloy has the composition $Fe_xCu_yM_zSi_vB_w$, with M indicating an element from the group Nb, W, Ta, Zr, Hf, Ti, Mo, or a combination of these and $x + y + z + v + w = 100\%$, with

Fe	$x = 100\% - y - z - v - w$
Cu	$y = 0.5 - 2$ at%
M	$z = 1 - 6$ at%
Si	$v = 6.5 - 18$ at%
B	$w = 5 - 14$ at%

with $v + w > 18$ at%.

6. (previously presented) The interface module according to claim 5, wherein the following relationships apply:

Cu	$y = 1$ at%
M	$z = 2 - 4$ at%
Si	$v = 14 - 17$ at%,

with $v + w = 20$ to 24 at%.

7. (previously presented) The interface module according to claim 1, wherein the alloy has the composition $Fe_xZr_yNb_zB_vCu_w$, with $x + y + z + v + w = 100$ at%, with

Fe	$x = 100$ at% $- y - z - v - w$
Zr	$y = 2 - 5$ at%
Nb	$z = 2 - 5$ at%
B	$v = 5 - 9$ at%
Cu	$w = 0.5 - 1.5$ at%

with $y + z > 5$ at% and $y + z + v > 11$ at%.

8. (previously presented) The interface module according to claim 7, wherein the following relationships apply:

Fe	$x = 83 - 86$ at%
Zr	$y = 3 - 4$ at%
Nb	$z = 3 - 4$ at%

Cu $w = 1$ at%

with $y + z > 7$ at% and $y + z + v > 12$ to 16 at%.

9. (previously presented) The interface module according to claim 1, wherein the alloy has the composition $Fe_xM_yB_zCu_w$, with M indicating an element from the group Zr, Hf, Nb and $x + y + z + w = 100$ at%, with

Fe $x = 100$ at% - y - z - w

M $y = 6 - 8$ at%

B $z = 3 - 9$ at%

Cu $w = 0 - 1.5$ at%.

10. (previously presented) The interface module according to claim 9, wherein the following relationships apply:

Fe $x = 83 - 91$ at%

M $y = 7$ at%.

11. (previously presented) The interface module according to claim 1, wherein the alloy has the composition $(Fe_{0.98}Co_{0.02})_{90-x}Zr_7B_{2+x}Cu_1$, with $x = 0 - 3$ at%, with the residual alloy component Co able to be replaced by Ni with appropriate equalization.

12. (previously presented) The interface module according to claim 11, wherein $x = 0$.

13. (previously presented) The interface module according to claim 2, wherein the alloy has the composition $Co_a(Fe_{1-c}Mn_c)_bNi_dM_eSi_xB_yC_z$, with M indicating one or more elements from the group Nb, Mo, Ta, Cr, W, Ge, and/or P and a+b+d+e+x+y+z = 100, with

Co	a = 40 - 82 at%
Fe+Mn	b = 3 - 10 at%
Mn/Fe	c = 0 - 1
Ni	d = 0 - 30 at%
M	e = 0 - 5 at%
Si	x = 0 - 17 at%
B	y = 8 - 26 at%
C	z = 0 - 3 at%

and 15 at% < e+x+y+z < 30 at%.

14. (previously presented) The interface module according to claim 2, wherein the alloy has the composition $Fe_xCu_yM_zSi_vB_w$, with M indicating an element from the group Nb, W, Ta, Zr, Hf, Ti, Mo, or a combination of these and x + y + z + v + w = 100%, with

Fe	x = 100% - y - z - v - w
Cu	y = 0.5 - 2 at%
M	z = 1 - 6 at%
Si	v = 6.5 - 18 at%
B	w = 5 - 14 at%

with v + w > 18 at%.

15. (previously presented) The interface module according to claim 2, wherein the alloy has the composition $Fe_xZr_yNb_zB_vCu_w$, with x + y + z + v + w = 100 at%, with

Fe	x = 100 at% - y - z - v - w
Zr	y = 2 - 5 at%
Nb	z = 2 - 5 at%
B	v = 5 - 9 at%
Cu	w = 0.5 - 1.5 at%

with y + z > 5 at% and y + z + v > 11 at%.

16. (previously presented) The interface module according to claim 2, wherein the alloy has the composition $Fe_xM_yB_zCu_w$, with M indicating an element from the group Zr, Hf, Nb and x + y + z + w = 100 at%, with

Fe	x = 100 at% - y - z - w
M	y = 6 - 8 at%
B	z = 3 - 9 at%
Cu	w = 0 - 1.5 at%.

17. (previously presented) The interface module according to claim 2, wherein the alloy has the composition $(Fe_{0.98}Co_{0.02})_{90-x}Zr_7B_{2+x}Cu_1$, with x = 0 - 3 at%, with the residual alloy component Co able to be replaced by Ni with appropriate equalization.

18. (new) An interface module for local area networks (LANs) having an inductive component used as a transformer for coupling interface circuits to a data line used to connect computers, with the inductive component functioning at LAN data rates up to 100Mbit/second and having a magnetic core and multiple windings applied to the core, wherein the inductive component used as a transformer has a magnetic core made of an amorphous or nanocrystalline alloy with a permeability $\mu >$ 15,000 and the number of turns of the windings is between 5 and 25.

Response

A. Introduction

Claims 1-17 were pending in the application prior to entry of the preceding amendments, and claims 1-18 are pending now. The Examiner initially rejected claims 1-2, 5-10, 14, and 16 under 35 U.S.C. § 102(b) as anticipated by European Patent Document No. 0637038 (the "Yoshizawa Patent Document"), claims 1-4 and 13 under section 102(b) as anticipated by European Patent Document No. 0378823 (the "Binkofski Patent Document"), and claims 11-12, 15, and 17 under 35 U.S.C. § 103(a) as obvious in view of the Yoshizawa Patent Document considered together with U.S. Patent No. 5,741,373 to Suzuki, et al. Although Applicants disagree with the initial rejections, they have revised claim 1 slightly (and added claim 18), further distinguishing the claimed invention from the documents cited by the Examiner.

B. The Claims

In particular, Applicants have revised claim 1 to refer to an interface module for local ***area*** networks (LANs) instead of local data networks. As noted in the application, LANs comprise frequency ranges to at least 100-125MHz (*i.e.* data rates up to at least 100-125Mbits/second).[*] See Application at p. 4, l. 4 through p. 5, l. 11. By contrast, the frequency ranges disclosed in the Yoshizawa and Binkofski Patent Documents and in the Suzuki patent are lower than 100kHz (*i.e.* 100Kbits/second), ***more than one thousand times lower than the upper frequency***

[*]Applicants also have added independent claim 18, describing in the body of the claim that the inductive component "function[s] at LAN data rates up to 100Mbit/second."

range of the invention. Indeed, the ISDN networks addressed in the art cited by the Examiner have data rates of only 64 Kbits/second (64kHz), significantly lower than even 100kHz--and ***almost two thousand times lower*** than the upper frequency range of the invention.

In view of the much higher frequency ranges involved, the present invention seeks to lower the number of turns of the windings of the inductive components. By lowering this number of turns, the leakage inductance is reduced, positively affecting the overall performance of the interface. None of the patent documents of record, by contrast, disclose or suggest lowering the number of windings applied to high frequency ranges and cores having high permeability. For at least this reason, Applicants thus request that the Examiner reconsider and allow the pending claims.

Petition for Extension of Time

Pursuant to 37 C.F.R. § 1.136(a), Applicants petition the Commissioner for all extensions of time needed to respond to the Office Action.

Fees

Enclosed is a check for $950.00 for the petition fee. Applicants believe no other fee presently is due. However, if Applicants' belief is mistaken, the Commissioner is authorized to debit Deposit Account No. 11-0855 for any additional fee due as a consequence of Applicants' submission of this paper.

Conclusion

Applicants request that the Examiner allow claims 1-18 and that a patent containing these claims issue in due course.

Respectfully submitted,

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